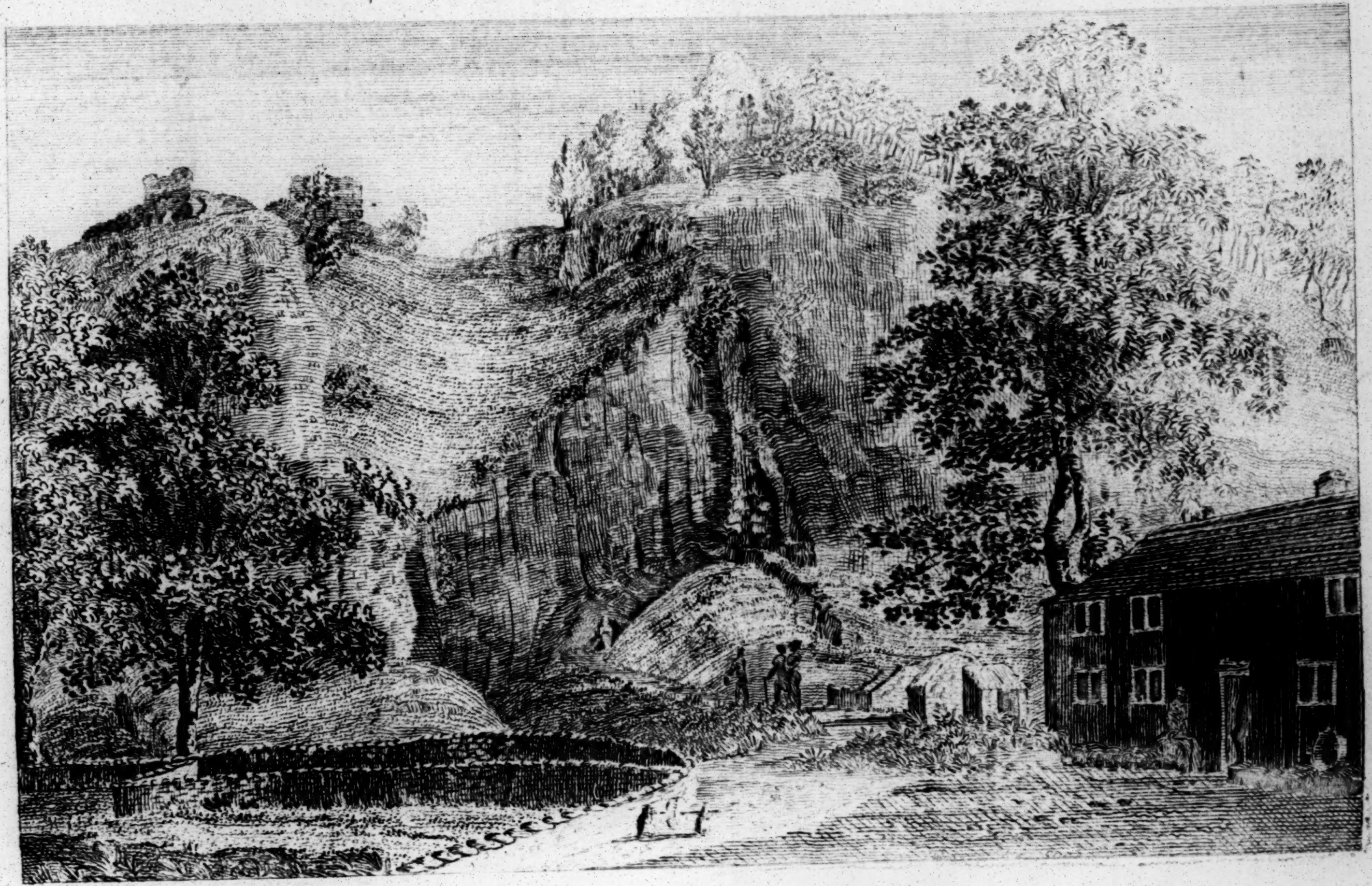
1803.

6

A
DESCRIPTION
OF
CASTLETON,
IN
DERBYSHIRE.



VIEW of PEAK'S HOLE

579.c.44
3

A SHORT
DESCRIPTION
OF
CASTLETON,
IN
DERBYSHIRE;
ITS
NATURAL CURIOSITIES, AND MINERAL PRODUCTIONS.

By J. M. HEDINGER.

Semper Scientiæ juventur.

FIFTH EDITION.

DERBY: PRINTED BY J. DREWRY:
AND SOLD BY S. NEEDHAM,—CASTLETON.

Price One Shilling.

(ENTER'D AT STATIONER's HALL.)

PRESENTED BY
MUSEUM
S.S.B.
BRITANNICUM
LADY BANKS.

DEDICATION.

TO HER GRACE

THE DUCHESS OF DEVONSHIRE.

THE very peculiar Attention your Grace has long ſhewn to the MINERAL KINGDOM, induces me to place the following ſhort Eſſay under your Patronage.

Your Wiſh of promoting the Science of Chemiſtry, connected with Mineralogy, your intimate Knowledge of the Valley treated of, and the general Beneficence of your Character, leave me little doubt but you will excuſe the Liberty I take, more eſpecially when I aſſure your Grace, that Aſſiſtance to the Indigent is the principal Motive to the Undertaking.

I have the Honour to be,
With the greateſt Reſpect,
Your GRACE's
Moſt devoted and humble Servant,

J. M. HEDINGER.

PREFACE.

AT this Period, when Mineralogy forms the Study equally of the Gentleman and the Artiſt, the following ſhort Account of a Neighbourhood explored by Men of Science will, I truſt, prove acceptable to that part of the Public who viſit Derbyſhire; a County where Mineralogy may moſt certainly be better underſtood than any other in the Kingdom, from the different Minerals it abounds with, the Variety of its Strata, and their ſingular expoſed Situations: as it will be read generally by thoſe of liberal Minds, I leave it to explain itſelf. My principal Wiſh is to be in any degree uſeful to the Traveller, and to aſſure the Public, that Caſtleton is one of the moſt healthful and intereſting Villages in *in the Kingdom; its Fertility ſo much ſurpaſſes the Neighbourhood, its produce of every Neceſſary of Life ſo abundant, and its Air ſo pure and wholeſome, that it may be truly called the Garden of the Peak.*

Any Advantage ariſing from the Sale of this Publication is intended for the Benefit of an induſtrious working Miner, as a Teſtimony of the Eſtimation a grateful Traveller retains for his Attention, good Manners, and Civility, during his Stay at Caſtleton.

A SHORT

DESCRIPTION

OF

CASTLETON.

THE approach to *Caſtleton* by the Winding Gate, commonly called the *Winnets*, is down a very ſteep hill, a mile in length, and rendered daſſable by the ſerpentine direction of the road.

Here Nature preſents herſelf in her rudeſt forms: Down the road the proſpect is bounded by the rugged rocks projecting in the moſt romantic manner, bare and ſterile. On each ſide, theſe tremendous mountains are many hundred feet high; ſome ſteep, overhanging, and in various forms, as if ſeparated by a convulſion of nature. Theſe mountains are compoſed of Lime ſtone, full of marine exuviæ. The parts which retain their primitive form are the ſteep rocks, and thoſe which overhang, where the decompoſition (from the atmoſphere) cannot remain. Thoſe parts which are more horizontal, and where the decompoſed Limeſtone can remain, are extremely productive of ſhort graſs, and afford a moſt excellent paſture for ſheep.

While the traveller is meditating on his ſafety, and anxiouſly wiſhing for his arrival at the bottom of this declivity, he is moſt agreeably relieved by the ſudden view of the valley: the lofty mountains no longer confine the ſight, but a beautiful picture ſque and fertile valley, of four miles in length, appears encircled by a chain of mountains. Here, traveller, ſtop and collect thyſelf! View this fertile valley as one of the greateſt gifts of Providence, who has beſtowed on the inhabitants of this place all the climate can produce.—This valley is well watered, the rivulets produce the fineſt trout, and the land is very productive.

It is my intention to give a ſhort deſcription of this place, its mineral productions, &c. which nature has rendered ſingular. I ſhall not enter into minute details on any ſubject, but what may prove amuſing to the traveller, and inſtructive to the ſcientific; and will, I hope, be the means of making this healthful place more generally reſorted to, and its natural curioſities more noticed.

In the valley is the village of *Caſtleton*, which takes its name from the caſtle on the hill; alſo the villages of *Hope*, and *Brough*. The mountains to the north are compoſed of Grit-ſtone and Shale, thoſe to the ſouth are Lime-ſtone: its waters and ſprings are numerous, and are particularly pellucid and agreeable.

I now return to the approach of this village, and ſhall endeavour to give a juſt deſcription of objects as they ſtrike the traveller, in ſo impreſſive a manner as to cauſe a ſource of enquiry within himſelf. In coming down the before-mentioned road, the *Winnets*, the Traveller perceives *Mam Tor*, or the *Shivering Mountain*, on the left hand, rearing its lofty head above the reſt, and of a ſingular form; its height is full 1300 feet above the level of the Valley. The perpendicular appearance of the face of this mountain will cauſe ſome enquiry in the mind of every intelligent obſerver. Its hiſtory is intereſting.

The ſtratum of this mount is Shale and Gritſtone. The Shale, ſo ſubject to decompoſe by the action of the atmoſphere, has been the cauſe of one part of it ſeparating from the other, by which means the valley below it has been covered for a very conſiderable diſtance. At the foot of this mountain, before it ſeparated, were ploughed fields, trees, and buildings, which, by its ſeparation from the preſent remaining part, were all overwhelmed for the diſtance of half a mile; and now every day proves the truth of the aſſertion, as in mines near its foot, at the depth of 100 yards trees have been found entire, the ſituation of which clearly prove they have exiſted in the valley, or on the ſide of the mountain before its ſeparation. It is commonly called the *Shivering Mountain*; the reaſon is, after long froſts, heavy gales of wind, rain, &c. large quantities decompoſe and fall from its original ſtratum, which greatly increaſes the maſs below: the ſubſtance ſometimes falls in ſuch quantities as to be heard and felt at *Caſtleton.*

On the ſummit of this almoſt perpendicular mountain is a ſpring of fine water, and near the top of it appears an entrenchment or boundary line, probably cut by the ancients. The Shale of this mountain is much impregnated with Vitriol of Iron, and the Grit-ſtone is compoſed with Mica, which ſerves to indicate it to be of the primitive origin.

At the foot of *Mam Tor* and near it to the ſouth is the famous mine, called *Odin*, a rake or perpendicular vein of Lead Ore, worked horizontally more than a mile. The top of the vein is in the Shale, but the Ore is generally in the Lime-ſtone. This mine receives its name from the Saxons, who formerly worked in it, and moſt of the mineral terms uſed here are of Saxon origin. The traveller who wiſhes to gratify his curioſity, by going through the works of this mine, ſo inſtructive in natural hiſtory from its ſituation, will reap much information by enquiring at *Brown's* for a miner who works in it, and whoſe name is *Samuel Needham*. For his attention and civilities I mention his name, in hopes that it may be of ſervice to him, and that the traveller may reap information without impoſition.

The Lead Ore produced here is Potter's Ore, and yields about three ounces of ſilver to the ton of lead, but the quality of the Ore differs in different parts of the mine. This mine produces fine Calcareous Cryſtallizations, Blende, Barites, cryſtallized Fluor Spar, Sulphuret of Iron, Manganeſe, &c.

The mountain oppoſite the *Oden* mine, and to the ſouth, reaches to the *Winnets*, and forms the mountains on the left hand, as you approach this place. It commences near *Mam Tor*, at a ſmall diſtance ſouth of *Oden*, and is compoſed of very different ſubſtances, viz. Limeſtone, full of marine exuviæ; it indicates, in a very ſatisfactory manner, violent convulſions of nature. In this rock, (ſo intereſting to the naturaliſt) is found the beautiful Fluor Spar, commonly called Blue John.—This gem of nature is peculiar to this place, and found on this mountain only, in mines worked alone for it. The ſuperb ornaments made of it, are living teſtimonies of its unrivalled beauty. The maſſy cryſtallizations, the tints of colour from the Topaz to the richeſt Amethis and Ruby, are beautifully diſplayed in ſportive veins, that form the moſt agreeable feſtoons; the ſudden contraſt at once aſtoniſhes and ſurpriſes the beholder.

The manufactory for theſe beauties* of the mineral kingdom is carried on by *Brown* and *Co.* of *Derby*, to whom I am much obliged for their attention, in ſhewing me the whole of their extenſive works, and for the great ſervice they rendered me, in giving me a general deſcription of the mineral kingdom of that county. They have invented a new method of poliſhing and working theſe ſtones by lathes, worked by a water-wheel,§ 30 feet diameter, by which means the beauty of the ſtone is ſhewn to a much ſuperior advantage, than by the methods practiſed on a ſmaller ſcale; and I am convinced that ſo long as natural beauty is admired, theſe elegant ornaments will continue to be introduced into the moſt magnificent apartments, and amply repay the ingenuity of their patrons for their diſtinguiſhed ability and merit, in bringing forward a manufactory new to every other part of the world.

---

* The greateſt Aſſemblage of which may be ſeen at their Warehouſe, No. 5, Taviſtock-Street, Covent-Garden, London; and at Caſtleton, on the ſame Terms as at their Manufactory.

§ 'Tis worthy of notice, this machinery (the only one of the kind,) was the original mill which was erected by Sir T. LOMBE, for the throwing of ſilk at Derby.

But it is not my intention to deviate from my plan, farther than by informing the ſtranger of the beſt markets for the productions peculiar to the place I deſcribe. Oppoſite the mountain before deſcribed, and on the right-hand ſide of the road, is a public houſe, ſituated at the entrance of the *Navigation Mine,* ſo called on account of its waters being collected, ſo as to float boats to convey the Ore, and otherwiſe render the work leſs laborious. This mine was originally driven for Lead Ore, in a north and ſouth direction, to cut acroſs the general run of veins in this county, which are eaſt and weſt. The hope of gain encouraged the adventurers to proceed, until ſo little Ore was got as to render it not worth working. Its natural curioſities are as follows.

Firſt, you are introduced by your guide (who is a very civil and attentive man) down an arch 106 ſteps, when you arrive at the water (which is about three feet deep) and forms the horizontal ſection of the mine. Here you get into the boats, which are perfectly ſafe, and are put in motion by puſhing wooden pegs in the roof ſix feet aſunder. Thus you are navigated thro' various caverns, until you arrive at the grand cavern, called the *Devil's Hall*, where the water forms a lake: you are here 600 feet below the ſurface of the earth: the height of this wonderful cavern has not been explored. On your left hand is a ſtrong wall, with a water-gate in it, through which the water falls into a tremendous abyſs. The fall is about 90 feet, and the depth of the abyſs is about 320 feet ſtanding water. It is worthy of notice, that during the time this mine was worked, the refuſe was thrown down the abyſs to the amount of 20 tons per day, for four or five years, and it has not in the leaſt been perceived to fill up, as its depth by the plumb continues the ſame. This may be accounted for by ſuppoſing the bottom of the abyſs to have communications with others in different directions.

There are ſeveral other caverns of much greater extent, but very difficult of acceſs: ſhould the curioſity of the traveller lead him to viſit them, he may be accommodated with a guide and neceſſaries, by applying to the landlord at the houſe. This mine is ſituated in the Lime-ſtone, its produce was not intereſting, but it is a ſpecimen of good workmanſhip.

From theſe ſubterraneous places of retreat, you are conducted back, when you will fail not to heartily welcome the approach of day, and relate the ſituation you have been in with mirth, pleaſure, and aſtoniſhment. From this you proceed about a quarter of a mile down the road to *Caſtleton,* and at the inn there you will be ſure to find an excellent larder, good wine, and good accommodations.

Here the guide for *Peak's Hole* offers his ſervice to you, and now, reader, be aſſured you are going to ſee *a Grand Wonder of Nature.* You are conducted about 50 yards from the Inn, and then meet with the water which has its ſource from the rocks adjoining *Peak's Hole.* You then proceed along the ſide of the rivulet, and croſs it by a ſmall bridge; ſoon afterwards you enter the fiſſure or ſeparation of the rock, at the end of which is the cavern. On either ſide as you proceed up the bank, your guide ſhews you veins in the Lime-ſtone, which run perpendicular, and contain Lead Ore. One has been cut out, and appears as a fiſſure on the left hand. The perpendicular range of the rocks before you, and on each ſide, ſtrike the mind ſolemnly grand; the height of that on the left is more than 250 feet. The whole is Lime-ſtone, full of marine materials. The entranee of the cavern next appears in view, and the mind will now be engaged in contemplating the awful ſtructure of this grand and natural piece of architecture.—View the abutment* on the left, 20 feet below the road on which you ſtand, the ſpringing of the arch, the arch itſelf, and you will ſay—nothing but an arch could ſupport the incalculable weight of the incumbent ſtrata!!

The natural appearance of the entrance into this

wonder

---

* The rock is ſtratified in beds of different thickneſs, which gives it ſomething of the appearance of maſonry.

wonder of nature is hid on the right by the huts of the poor inhabitants, who you ſee carry on a manufactory for ſmall cord, twine, &c.

The ſpan of the arch is 120 feet, and its height from the left abutment above 70 feet. The length of the firſt cavern is 180 feet: In it you are ſhewn ſeveral Stalactites,* which your guide calls *Petrified Waters*, and by many romantic names, as *Flitch of Bacon*, &c. Near the end of the firſt cavern, and where you are accommodated with candles, you ſee on your right hand a rock detsched, many tons weight, which probably fell from the roof at the period which form'd the ſubterraneous manſion.

From this rock you proceed (each perſon being provided with a candle) and ſoon approach a ſmall door;

---

* Stalactite, vulgarly and erroneouſly called Water-icle, Petrified Water, &c. is an accumulation of fine calcareous earth, which the water in filtering through the ſtratum is loaded with, each drop leaving behind it a portion of the earth it was ſaturated with, which by attraction and the cementing quality forms a ſubſtance, which from a molicula is increaſed to a Stalactite.

door: here the diſtant light appearing from the extreme of the cavern has a moſt ſingular effect, the whole aſſuming a ſtupendous view of a conclave. Now the paſſage becomes narrow and low; you then proceed ſtooping* until you come to a cavern or hole above the head, ſhaped ſomething like a bell, which your guide calls the *Bell-houſe,* from it reſembling that form. Thence paſſing along you are ſhewed a line on the ſide of the rock, to which height the water riſes in very heavy rains. Continuing to proceed ſtooping, you arrive at the firſt water, on which there is a boat: the water is about two feet deep Here the cavern has a confined appearance, and the ſtrata ſeems much diſlocated. Your guide walks into the water, and directs you to lie down in the boat, (in which there is not the ſmalleſt danger) and in that poſture he ferries you through a ſmall aperture, juſt ſufficient for the boat to paſs, and lands you in a cavern more ſtupendous than the firſt. Here you ſtop until your guide ferries over the whole

---

* Here permit me to warn the viſitors not to alter that poſition too ſoon, for fear of hurting the head againſt the rock above.

of the party. The extreme length of this ſubterraneous hall is about 250 feet, the width 200, and the height various, in ſome places 120 feet. On examining this wonder of nature, a ſmall part is only ſeen even with an immenſe number of candles ; the whole is formed in a ſtratum of Lime-ſtone, which apparently has undergone violent concuſſions of nature.

Leaving this cavern you ſoon arrive at another water, which is much ſmaller than the firſt, over this you are carried by your guide with eaſe and ſafety. Being landed on the other ſide, you ſoon arrive at an aperture where water is always filtering down: this your guide calls *Roger Rain's Houſe*: From this you continue to the Chancel, where you are ſuddenly accoſted by a choir of voices from a gallery above, at the height of 60 feet: The illumination is novel and pretty, and the effect of the ſinging is grand. Here are many detached pieces of rocks, and the roof appears rent and broken all over ; the Stalactites formed in various parts glitter with the lights, and have a very romantic appearance.

From the chancel you proceed to a fiſſure called by your guide the *Devil's Cellar* ; from which you deſcend gradually 150 feet, and at length arrive at the Half-way houſe, as the guide calls it: here is a fine little ſtream of pellucid water. Paſſing on you proceed through three pretty formed arches by the ſide of a little ſtream of water, which you croſs, the roof aſſuming a more regular ſegment of a circle, until you arrive where the roof again aſſumes the form of a bell, and is from that called *Tom of Lincoln.* Onward you proceed, and at length ſoon reach the extremity of this truly *Grand and Wonderful Subterraneous Manſion of Nature,* and are above 2250 feet from the entrance. The water here clearly proves other ſubterraneous communications, as the calcareous ſtones found in it are much rounded by attrition.

You now return, and are ſaluted with the effect of a *Blaſt** (a term of the miners,) the exploſion of which is grand, and for a while (from ſurprize) ſtaggers the ſenſes.

---

* In mining where the rock is ſo hard as not to be cut with a pick, they work a hole with a ſteel borer and hammer, and when it is of ſufficient depth, they put gun-powder in it, ram it cloſe, and fire it off, which breaks off much of the rock, and anſwers the intended purpoſe.

The return of day-light, ſo pleaſing after the ſubterraneous viſit, is heartily welcomed by all, and here, where you deliver up the remaining bits of your candles, the appearance of day-light has the ſtrongeſt effect.

Your guide now conducts you back to the Inn, where you will be refreſhed by a good dinner and excellent wines, having been engaged about three quarters of an hour in viſiting this ſtupendous work of nature. At the Inn you have a view of a venerable building on an eminence, called the *Caſtle*, which is in a ruinous condition; no certain account is known when it was built, or by whom, or for what purpoſe; probably by the Saxons, as a reſidence for the mine-maſter, when they reſided in the town, and worked the mines here. Its ſituation is uncommonly ſingular; the weſt end ſtands on the top, and cloſe to the brink of the high perpendicular rock on your left hand, at the entrance of *Peak's Hole*. The eaſt and ſouth compartments are built on the edge of perpendicular rocks, which form a fiſſure called the *Cave*; the Caſtle fronts the north, and the road to it is up the ſteep hill before you, being inacceſſible in every other direction. The building is in a ruinous ſtate, has no peculiar marks of grandeur or elegance; it ſeems to have occupied a conſiderable ſpace, and the eminence on which it ſtands is Lime-ſtone.

The town of *Caſtleton* has no particular marks of grandeur. The *Saxons* at one time, probably, inhabited it on account of the mines in the neighbourhood.—Reſpecting the firſt building of the Caſtle (it is before obſerved) no account is known.

It belonged to the *Peverals*, and was given by *Edward* the Third to his ſon, *John* Duke of *Lancaſter*. It was uſed for keeping the mine court records, till removed to *Tutbury*. It is built of the hardeſt free-ſtone, and muſt have occaſioned great labour to bring the ſtone up ſuch an eminence.

An entrenchment ſeems to have been made from the foot of the Caſtle-hill on one ſide, forming a ſemi-circle round the town to the foot of the hill on the other ſide, the Caſtle having the command of the whole. It is now called the *Town Ditch,* and is only to be made out in particular ſituations.

Singular coins and curious implements have been found on the Caſtle-hill. The town is inhabited chiefly by miners, who in general are good members of ſociety. The mines find employment for men, women, and children.

The Cave, ſo called probably from many holes in the Lime-ſtone ſtratum, which form ſmall caverns, is very narrow at its entrance, which is betwixt two ſteep Lime-ſtone rocks; after proceeding a ſhort diſtance the rocks are farther apart. In many places may be ſeen veins, where ſmall quantities of Lead Ore have been found.

This place is conſiderably on the aſcent, and from the ſingularity of the rocks on each ſide, and the richneſs of the ſoil formed by decompoſition, is very productive of many novelties of botany, particularly a great variety of lichens, moſſes, &c. About half a mile up this valley is a ſtratum of Baſalt, which appears at the ſurface, and an irregular formed Baſalt column with cryſtallized Quartz, bearing the appearance of Chalcedony. There is a ſingular clay-like ſubſtance on the ſurface of the Baſalt ſtratum, that appears very much like a ſcoria, or half-baked clay: this ſtratum is of conſiderable thickneſs, and has great inclination; the mountain oppoſite is Lime-ſtone. There are many varieties of Baſalts in this neighbourhood, but the column before alluded to is in appearance, texture, and hardneſs, the ſame as thoſe at the Giant's Cauſeway and Staffa, though not ſo regularly formed.

The Toad-ſtone ſtratum differs in general from this column, being ſeldom ſo hard or cloſe in texture; but many of the ſubſtances called Toadſtones, and ſuggeſted by my friend, the late Mr. *Whiteburſt*, to be from volcanic origin, are decompoſed, and on the moſt minute examination are difficult to be accounted for: their varieties, and the different ſtates they are in, ſufficiently prove their affinity. To the eaſt of *Caſtleton*, and on the road to *Bradwell*, (a ſmall village,) are ſeveral mines worked for Calamine, which produce Blende and ſome Lead

Ore; the ſtratum is Lime-ſtone, and the veins in many places appear at the ſurface. At *Pinder*, about half way betwixt *Caſtleton* and *Bradwell*, is a Lead mine of ſome conſequence, a ſpecie of decompoſed (ſuppoſed) Toad-ſtone, volcanic production, is cut in abundance; and at a mine near this, called *Dirtlow*, the vein of Ore is in the before-mentioned ſtratum.

In the valley are ſeveral coagulations of ſmall Lime ſtone in maſſes, cemented together by Stalactite: the water, ſtrongly impregnated with Carbonate of Lime, filtering through a maſs of looſe ſtone, has cemented them together, and forms ſomething reſembling the plumb-pudding ſtones. The Shale in this part of the valley is generally the upper ſtratum; but as you proceed up the hill, the Lime-ſtone appears at the ſurface. Here are ſeveral kilns for burning Lime, and the cliffs where the Lime-ſtone is blaſted for the purpoſe of getting ſtone to burn to Lime, are full of ſparry veins and marine ſhells, and form what is called *Derbyſhire* Marble, of which excellent Chimney-pieces are made; it is much harder, and takes a better poliſh, than the beſt Statuary.

In many parts of this valley, where two ſmall hills are oppoſite each other, I found one hill compoſed of Toad-ſtone, and the other Lime-ſtone.

In the middle of this valley is a large white building, which is a cotton-mill, and worked by a water-wheel; on the left hand, the north ſide of the valley, are no mines, the ſtratum being Grit-ſtone and Shale. At the extremity of the valley is the village *Hope*, and a little further is *Brough*, where there is another cotton-mill.

Should the curioſity of the traveller lead him to ſee *Elden Hole*, diſtant about three miles, he may be accommodated with a guide to it.

The mountains to the north of *Caſtleton* afford but poor returns for cultivation, in proportion to the valley; their ſtratum is Grit-ſtone and Shale: the Lime-ſtone ſtratum lays under them, but at ſuch a depth that the veins of Ore in that ſituation cannot be worked; on this ſide there are not any mines. In this neighbourhood is a great variety of Grit, compoſed of large

Quartz

Quartz Pebbles, ſome of which are cryſtallized, with veins of Fluor. Quarries are worked to obtain this Grit for building purpoſes; there is alſo an Argillaceous Grit uſed for building, but ſubject to decompoſe. The Micaceous Grit ſplits in laminæ, has a good deal of elaſticity, and is uſed for roofing houſes. Sometimes Oxide of Iron is found with Argill in the Grit-ſtone, alſo Rotten-ſtone, a ferruginous ſubſtance.

The Shale or Shiver in this neighbourhood is of a dark brown colour, nearly black, and forms a thick ſtratum in many places. It is generally impregnated with Vitriol of Iron; ſome of it is more ſaturated with Carbonic Acid; in its ſtratum it is exceedingly hard, but ſoon decompoſes when expoſed to the air: it varies much in its quality and texture, and frequently contains Petrol. This ſtratum abounds with Martial Pyrites, and in it are frequently veins of Calcareous Spar, Cawk, &c. which bear Lead Ore, though by no means ſo generally as the underſtratum Lime-ſtone.

It is neceſſary here to obſerve, that each ſtratum is ſeparated by a clay, ſometimes a foot or more in thickneſs, and frequently layers of clay a few inches thick are found interjected in various ſituations in the Lime-ſtone ſtratum, which is ſtratified, the others are not.

The Lime-ſtone ſtratum differs much: there are many quarries for Lime-ſtone in a ſquare mile, all of which differ in ſome degree in their quality; ſome are entirely compoſed of marine ſhells, &c. while others are exceeding hard, and contain but few: they make excellent lime, and the uſe of it has greatly increaſed the cultivation of the mountains.

In this ſtratum the greateſt quantity of Lead Ore is found in veins, which generally interſect the ſtratum at right angles. Theſe veins are compoſed of Calcareous Spar, Cawk, and Kevil, with Lead Ore; they commonly appear at the ſurface, and are followed by the miners, until they judge whether it will anſwer their purpoſe: if they find it rich, they take the range of the vein with the compaſs, which is almoſt always here nearly eaſt and weſt. They then form their judgment which way will be the moſt judicious to work the mine to the greateſt advantage.

They are ſubject to peculiar laws and cuſtoms, and have a *Bar Maſter, who is an excellent miner, in whom great truſt is repoſed, and whoſe duty it is to ſettle diſputes, and diſtribute juſtice. When a vein is ſituated in a horizontal direction, which it often is, it is called a flat, or pipe work.

This ſtratum at various depths is commonly ſeparated by what is called the Toad-ſtone, which always cuts off the vein of Ore. The Toad-ſtone is of various thickneſs; it ranges under the Lime-ſtone alternately in this neighbourhood. It is of various colours, from the baſalt dark-brown, to a light-coloured ochre full of fine green ſpots. It does not efferveſce with acids, has all the appearance of a ſcoria; its pores are frequently filled up with red earth, Chalcedony, Zeolite, and Calcareous Spar; and the clay that appears betwixt it and the Lime-ſtone has the appearance of a half-vitrified ſubſtance, brittle, full of holes, and of various colours. The thickneſs of this ſtratum varies much

---

* Mine-maſter.

much in the diſtance of a mile. On *Tideſwell Moor*, where this ſtratum interſected the vein that was worked in the incumbent ſtratum Lime-ſtone, and cut it off, the practical miners knew that by cutting through the Toad-ſtone ſtratum they were ſure to meet with the Lime-ſtone ſtratum underneath, and the vein of Ore they before had loſt. One inſtance in *Black Hillock* mine is where they loſt the vein of Ore by the Toad-ſtone cutting it off, they ſunk in the Toad-ſtone 100 fathoms, and could not get thro' it, while the miners at a ſmall diſtance on each ſide met with the Toad-ſtone and ſunk through it, being only a few fathoms in thickneſs; which was one reaſon the ingenious Mr. *Whitehurſt* thought it to be a lava, iſſuing from a crater, and injected betwixt the Lime-ſtone ſtratum, ſeparating the whole by its expanſive force, at the period of ſome violent convulſion, of which this neighbourhood ſhews ſo many ſtrong appearances. The Toad-ſtone ſtratum contains no marine productions, no vegetable impreſſions, nor any thing that ſerves to prove it was formed at the ſame period, or by the ſame means the ſtratum below it and above it was formed. Its ſeparating the veins of Ore and the ſtratum, are ſtrong arguments to ſuppoſe a diviſion has taken place in the Lime-ſtone ſtratum, independent of the entire difference of the component parts, and its ſingular various thickneſs.

In one mine on *Tideſwell Moor*, and in *Dirtlow* mine, near *Caſtleton*, the Toad-ſtone is ſaid to bear Lead Ore, and the vein is worked in that ſubſtance.——*Query*, if this ſubſtance is a Toad-ſtone, I found pieces in it to efferveſce with acids, and burn to lime. The ſituation of the vein of Ore in *Dirtlow* mine I went down to ſee, and did not on examination find it reſemble what Mr. *Whitehurſt* calls the Toad-ſtone: but miners here generally call any ſubſtance they do not know by that name, which is the caſe in the above inſtance, it being of a ſingular colour, and appears in a decompoſing ſtate. The mine on *Tideſwell Moor* I did not examine: Toad-ſtone ſeldom forms fiſſures; after torrification, I found particles of it attracted by the magnet.

In the veins of Ore are generally found Calcareous Cryſtallizations, Blende, native Oxyde of Zink, Galena, Potter's Ore, (very poor in ſilver) attended ſometimes with Manganeſe, Carbonate of Lead, and Molybdate of Lead, and a very great variety of Sulphates of Barytes, cryſtallized with native Sulphur, bliſtered, fibrous, compact, &c. &c. alſo Fluor in various ſtates, and finely cryſtallized. Clays and calcareous Marls are found in various parts, the latter of which may be made uſeful for manuring land. Steatites are found ſometimes in ſmall quantities; a variety of Bitumens and Quartz Cryſtals, perfect Hexagonal Priſms, and double Pyramids are found imbedded in the Lime-ſtone detached.

The mountain on which the Blue Fluor is found, is very intereſting to the naturaliſt: the mines in it are full of caverns; the walls throughout the country are full of fine petrefactions; the caverns contain fine Stalactites, Ochres, and varieties of Sulphuret of Iron: Argillaceous Iron Ores are found in the neighbourhood.

The ſtrata publiſhed by *Brown* and *Co.* with the collection of ſubſtances, the produce of that county, claſſed and arranged according to their affinities, give a better deſcription of the *Geology*, than any traveller can make on a purſuit like mine, and which are to be acquired at their warehouſe in *London*, or at *Caſtleton*, or at their manufactory in *Derby*.

I meant to have given various ſections of the ſtrata in *Derbyſhire*, and the analyſis of its productions throughout the mineral kingdom; alſo a mineralogical map, laying down the ſituation of the mines; but finding that work is already begun by a Gentleman more able to do it juſtice than myſelf, being more thoroughly converſant with the ſubject, I decline it, in hopes of being gratified by ſeeing ſuch a publication ſoon brought forwards.

FINIS.

MUSEUM S.S.B. BRITANNICUM